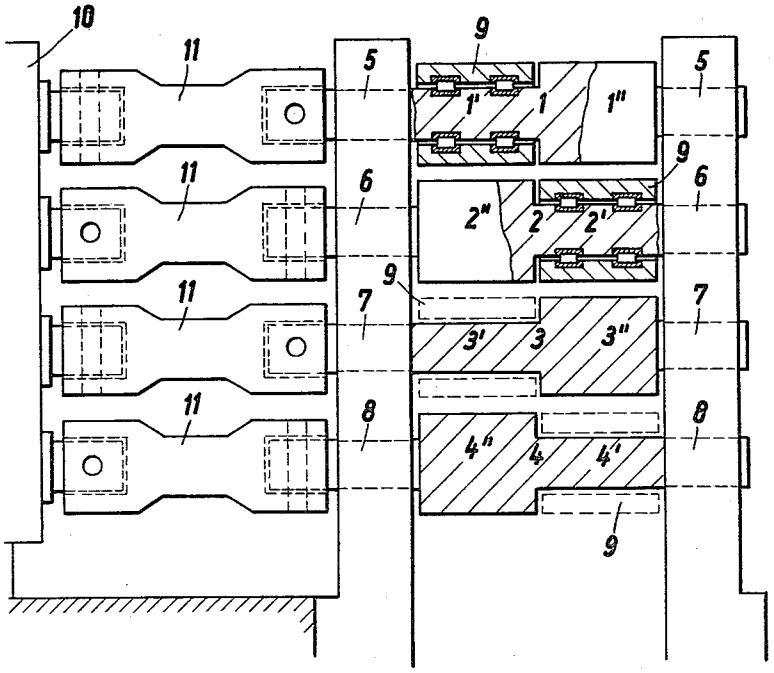
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EXTRUSION CONVEYOR APPARATUS FOR MULTIPLE CASTING INSTALLATIONS

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EXTRUSION CONVEYOR APPARATUS FOR MULTIPLE CASTING INSTALLATIONS

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The invention concerns extrusion conveyor apparatus and more particularly such a device for the multiple casting of extrusion castings of the same or different cross-section. An example would be casting rectangular cross sections, in the form of two or more slabs at the same position.

It has been known to cast several extrusion castings of the same or almost equal cross sections in one extrusion casting installation. For this purpose, special driving roller devices have been used. These installations, however, have to be considered from the aspect that they do not deal with intentional large differences in cross-section, but merely with deviations of the cross-sections due to technological variations.

It has also been attempted to absorb differences in the cross section of the extrusion castings by means of driving rolls whose axes are stationary. However, the rims of such rolls consisting of rims arranged side-by-side, are objectionable because they yield on their shafts.

It has also been known to produce two extrusion cast slabs by employing so-called traveling driving rollers which prevent the cast slabs being presented broadside in the narrow dimension.

These arrangements, however, have various drawbacks. In the first place, it is not possible to cast two extrusion castings having sectional sizes which differ markedly. Again, in the case of conveyor rollers arranged in traveling fashion it is necessary that each conveyor apparatus be driven separately on sides facing one another. Thus in multiple extrusion casting installations, the entire installation has heretofore been extremely expensive. In addition there also are drawbacks with respect to the distribution of the steel, e.g., the feeding of the steel to individual chill molds, since the conveyor devices are considerably spread out over the installation.

It has heretofore been known in this art in perpendicular extrusion casting installations how to arrange the driving rollers. The U.S. patents to Junghans 2,747,245 dated May 29, 1956 and Loewenstein 2,749,583 dated June 12, 1956 are examples of this.

The present invention is adapted to provide a conveyor apparatus which can be used both in the production of two castings of the same or different cross section with the extrusions cast side-by-side. In the case of an extrusion casting of rectangular cross-section, e.g. slabs, the invention gives the 3-dimensional lateral extension assuring a favorable condition for the distribution of the steel without at the same time exchanging the driving rollers. This is attained, according to the invention, by an arrangement described hereinafter.

Each conveyor roller consists of two, preferably cylindrical, parts of different diameter. Within each pair of conveyor rolls, the parts of the same diameter face toward one another. However, these parts, with respect

to any given pair of conveyor rollers, whether located underneath or on top, are displaced so that when drawing two extrusion castings, only each second pair of conveyor rollers is in touch with any one extrusion casting. Thus each time only half the number of the conveyor rollers present participate in drawing any one extrusion casting. For this reason, it is necessary that the conveyor rollers arranged in the same direction are driven separately. When drawing slabs whose broadside is gripped by each of the conveyor rollers present, all rollers are advantageously coupled mechanically so that all rollers are driven uniformly and together. The same steps are to me taken when drawing off extrusion castings of the same cross-section, when the part of the lower diameter of the driving rollers, by means of a hollow cylinder slipped on the lesser diameter part has been brought to the diameter of the thicker conveyor roller part. Thus, in this case, both extrusion castings are carried by all the conveyor rollers. If necessary, of course, the said hollow cylinders may be used even in pulling off slabs for the purpose of increasing the supporting surface. In all cases, each pair of driving rollers is adjustable in a known manner.

Thus, by the suggested steps, it is possible, in a single system of conveyor rollers, mainly by exchanging the chill molds and by using the above described steps to obtain both shapes of slabs of any desired width and thickness and two extrusion castings of different or equal cross section next to one another.

Since in this design of conveyor rollers, both when pouring slabs and in casting extrusion castings only one driving means is required, favorable conditions are provided for a multiple extrusion casting installation.

The invention will now be explained in more detail by means of the drawing which represents an embodiment of the invention in side elevation. Several pairs of conveyor rollers **1**, **2**, **3**, **4** are supported in separate starting devices **5**, **6**, **7**, **8**. The conveyor rollers consist of two parts **1'**, **2'**, **3'**, **4'** and parts **1''**, **2''**, **3''**, **4''** respectively of different diameters. They are preferably cylindrical. Considering any pair of conveyor rollers, the parts of the same diameter are located next to one another viewed in plan. In the vertical view of the drawing the parts of the apparatus of equal diameter, e.g., **1'**, **2'**, **3'**, **4'** are located in staggered fashion with respect to one another. In the case of casting slabs of high metric weight, for the enlargement of the supporting surfaces, the parts of lower diameter **1'**, **2'**, **3'**, **4'** can be equipped with hollow cylinders **9** whose outer diameters correspond to the conveyor roller parts **1''**, **2''**, **3''**, **4''** which are large in diameter. The conveyor rollers are driven across a transmission gear **10** and, preferably, Cardan shafts **11**. The drive takes place in such manner that, when casting two extrusion castings of different cross section, the rollers in a pair of conveyor rollers **1** and **3**, as well as **2** and **4** are each, within the pair, driven synchronously. This is so because due to the similarity of arrangement of the conveyor rollers, they are each time in contact with the same casting on the basis of their similar arrangement.

Thus in casting two equal extrusion castings, for example of slab form, these two conveyor roller groups are mechanically coupled.

What is claimed is:

1. Extrusion conveyor apparatus for multiple extrusion

casting installations comprising a multiplicity of pairs of driving rollers arranged one below the other, in combination with a multiplicity of intercalated pairs of conveyor rollers driven by said driving rollers in which each conveyor roller has two parts of different diameters, the parts of the same diameter in each pair facing toward each other, one of the parts in each conveyor roller being of equal diameter to a part in the other conveyor roller of the pair and any one pair of conveyor rollers being located facing one another, but the parts of the pairs of conveyor rollers located underneath one another being different in diameter.

2. Extrusion conveyor apparatus according to claim 1 in which there are hollow cylinders on the parts of lesser diameter of conveyor rollers, said cylinders having outside diameters corresponding to the part of greater diameter of the conveyor rollers.

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